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8. A ball *rolls* down the convex surface of a fixed sphere, the friction* being just sufficient to prevent sliding; find the point where it leaves the sphere.—Communicated by Artemas Martin, Mathematical Editor of *Schoolday Magazine*, Erie, Pa.

9. P and Q denoting two entire functions o x, such that we have $\sqrt{1-P^2} = Q\sqrt{1-x^2}$, we have necessarily

$$\frac{dP}{\sqrt{1-P^2}} = n\frac{dx}{\sqrt{1-x^2}};$$

n denoting an entire number.—Communicated by Prof. Hall, Washington, D. C.

10. The chief justice of a court makes a large number of legal decisions. Afterward it is found that 50 per cent of these decisions are erroneous. Required to determine the legal knowledge of the judge.—Communicated by Prof. Hall.

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EDITORIAL NOTES.

In presenting this, the second number, to our readers we hope it will be found to be something of an improvement on the first. We do not intend to use up our space in apologizing for past delinquencies, or in promises of future improvement, but we hope to learn from experience, and profit by the advice and criticisms of our correspondents.

A very considerable number of typographical errors occur in our first number. Some of these we noticed, but too late to remove them, and others have been pointed out by our correspondents. As all the errors that have been noticed are unimportant and cannot mislead any of our readers, we will allow each reader to correct them for himself; and we will here remark that, in the future, though we will use as much care as we can command to avoid typographical errors, and will, when *material*, if noticed or pointed out to us, subsequently insert the correction; but all immaterial errors, that is, all such as cannot mislead the reader, we will pass in silence; though we will be thankful to have our attention called to them, so that we can guard against similar errors in

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*If in this question the proper substitutions be made from the equations of motion as given in any standard work on Mechanics, *Bartlett's* for instance, it is found that the ball will quit the sphere at the moment when it has descended through seven-seventeenths of the radius of the sphere, supposing it to have started from the summit. But on the supposition that it *slides down the sphere without friction*, then it would quit the sphere when it has descended through one-third the radius.

Prof. Peck says, however, that "If a body be placed on an inclined plane and abandoned to the action of its own weight it will either slide or roll down the plane, provided there be no friction between it and the plane. If the body is spherical it will roll, and in this case the friction may be disregarded . . . . and equations (67) and (68) will be immediately applicable." [See Peck's Mechanics, p. 158.]

Will correspondents explain this apparent discrepancy.—Ed.

future issues. The delinquency, in all such cases, must be charged by correspondents to the printers and proof reader.

Some criticisms have been presented relative to the subject matter of the first number. Some of the articles are regarded by the critics as not possessing sufficient interest to entitle them to a place in such a journal. In answer, and without particularizing, we remark, that we do not entertain the same opinion, and we do not feel it a duty to apologize for *any* of the articles published. On the contrary, we believe that if the mind is allowed to dwell for a sufficient time upon almost any subject it will be found to be interesting. It is true that when any subject is thoroughly understood and perfectly familiar to us it ceases to possess much interest, as the mind is, and ought to be, intent upon *new* conquests. Hence, it would be vain to hope that all the readers would be interested with *every* article that should appear in *any* periodical, and especially in a periodical devoted to mathematics, which, to offer any chance of success, must occasionally present subjects that will tax the capacity of its ablest readers, and also subjects that are comprehensible to the less advanced reader.

Acting upon these convictions it is our desire and will be our aim to present something that will be adapted to the tastes and desires of each and every one of our readers, but we have no expectation of interesting *all* with everything that may be presented. We add, as a further explanation of the course we expect to pursue, that, when persons of known and acknowledged ability as mathematicians, present articles for publication, we will, as we find room, give them a place in our pages, even though we should not, from the limited examination that we may be able to give them, discover any special merit in the article. We will assume that it merits insertion from its presentation by a responsible author. But, on the other hand, to guard our pages from improper matter, when the author is not known to us as a mathematician of acknowledged capacity, the criterion must be our appreciation of the *merits* of his article.

We do not feel called upon to apologize for the somewhat extended article with which we introduce the present number. Though we have added four pages to this number in consequence of the space occupied by the first article, we have done so, not because we thought the number would possess less than the average interest without such addition, but because we are aware that a very considerable number of our readers feel little interest in astronomical questions of the kind there discussed, and might feel somewhat disappointed by a want of sufficient *variety* in the number.

We embrace this opportunity to say, that to *us* the consideration of comets and meteors is one of the most interesting subjects in physical astronomy; and that it appears to be a necessary conclusion from Prof. Hall's discussion of the subject—assuming the nebular hypothesis to be true in its main points—that the comets, which appear at intervals in our skies are not wanderers from other stars, but that most of them, if not all, belong to our system, and, probably, originated near the verge of the system. For, when the nebulous matter from which the system has been condensed extended to the neutral point of attraction between this and a contiguous nebula or star, the attracting influence at the out-skirts of the nebula must have been but feeble, so that as condensation progressed out-lying clouds of gas would haye been likely to remain behind near the point of neutral attraction, and these out-lying clouds would, in time, yield to the attracting force of the nearest nebula or star, and approach it as a comet or meteor in a parabolic or elliptic orbit. And although a few meteors have been observed that seemed to have too great a velocity to allow their motion to be referred to parabolas, yet if we admit they came from the stellar regions the difficulty of accounting for the initial velocity with which they must have entered our system is as great, it would seem, as to account for that velocity within our system; and when we take into consideration the uncertainty attending the observations, as indicated by Prof. Hall, the doubt as to their introduction from without is increased.